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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/012,846	01/23/98	CHARETTE M	CRP-141

HM12/0425

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EXAMINER	
TURNER, S	
ART UNIT	**PAPER NUMBER**
1644	11

DATE MAILED: 04/25/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad marks

Office Action Summary

Application No.	Applicant(s)
09/012,846	Charette
Examiner	**Group Art Unit**
Sharon L. Turner, Ph.D.	1644

☒ Responsive to communication(s) filed on 2-2-00

☒ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) 2, 5-11, and 23-27 is/are pending in the applicat

Of the above, claim(s) 23-26 is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 2, 5-11, and 27 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 7

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

Response to Amendment

1. The Examiner of U.S. Patent application SN 09/012,846 has changed. In order to expedite the correlation of papers with the application please direct all future correspondence to Examiner Turner, Technology Center 1600, Art Unit 1644.

2. The amendment filed 2-2-00 has been entered into the record and has been fully considered. Claims 1, 3-4 and 12-22 have been canceled. Claims 2, 5-11 and 23-27 are pending. (Claims 24-26 have not been canceled and are pending. Newly submitted claim 23 per applicants amendment is now claim 27.)

3. Applicant's affirmation of election of Group I, claims 2, 5-11, and 27 in Paper No. 8, filed 2-200 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

4. This application contains claims 23-26 drawn to an invention nonelected with traverse in Paper No. 8. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

5. As a result of applicants amendment, all rejections not reiterated herein have been withdrawn by the examiner.

Rejections Maintained

Claim Rejections - 35 USC § 112 first paragraph

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2, 5-11 and 27 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Applicants argue the following; that claim 2 as amended recites both well characterized morphogens and dosage, that support for this amendment may be found at p. 39, lines 6-7, that it is beyond question that the specifically recited morphogens are capable of inducing tissue-specific morphogenesis with reference to p. 16, line 15 to p. 18, line 16 and p. 2, lines 11-27, that morphogen protects and/or repairs cognitive function and reduces memory dysfunction with reference to p. 4, lines 1-10, that such dysfunction is associated with hippocampal tissue damage and/or temporal lobe damage with reference to p. 5, lines 5-9, that morphogen administration protects restores and repairs memory function with reference to p. 5, lines 17-22, that morphogen administration maintains neural pathways with reference to p. 14, line 27 to p. 15, line 7, that the specification provides an example of morphogen-induced hippocampal dendrite morphogenesis and synapse formation with reference to part IV(C), p. 59-61, that the specification teaches in vivo models for hippocampal tissue damage, (Examples 7-10, p. 45-48), that models for assessing cognitive function are provided at part IV, including examples 11-15, p. 48-55, that the

examiners rejection on the grounds that the neurons do not regenerate in the CNS is not relevant to these claims as amended, that the morphogens are structurally defined because they are well known and possess reference to SEQ ID Nos, that thus the rejection over the previous claims has been overcome, that claims 2 and 5-11 no longer recite stimulation of N-CAM or L1, that the specification teaches sufficient guidance for administration of the specific morphogens at p. 39, line 17 to p. 40, line 21, citing Remington's Pharmaceutical Sciences (1990), examples 1-3, p. 41-42 and further provides well known modifications and formulations that are useful to enhance morphogen administration across the blood-brain barrier including truncation, conjugation or alteration of lipophilicity with reference to Pardridge, Endocrine Reviews 7:314-330 (1986); US Patent No. 4,801,575; Kastin et al., Pharmac. Biochem. Behav. 11:713-16 (1979).

Applicant's arguments filed 2-2-00 have been fully considered but they are not persuasive. With respect to the specifically recited morphogens, the examiner points out that no sequence information is recited in the claim and that thus contrary to applicants assertion insufficient structural and functional limitations exist such that the skilled artisan can either make, use or even identify the invention claimed. A recitation of a protein by name alone provides no structural or functional limitations. With respect to applicants statements that morphogen protects and/or repairs cognitive function and reduces memory dysfunction with reference to p. 4, lines 1-10, that such dysfunction is associated with hippocampal tissue damage and/or temporal lobe damage with reference to p. 5, lines 5-9, that morphogen administration protects restores and repairs memory function with reference to p. 5, lines 17-22, that morphogen administration

maintains neural pathways with reference to p. 14, line 27 to p. 15, line 7, the examiner points out that none of these references to the specification provide working examples or data which is supportive of the specifications allegations. Contrary to applicants implications, a showing of such effects requires more than a mere statement that such effects occur, but require communication such that the skilled artisan can reliably and reproducibly make and use the invention claimed. The specification fails to teach the skilled artisan any example which demonstrates physiological affects of morphogen on cognitive function, memory, hippocampal or temporal lobe damage or maintenance of neural pathways. With respect to applicants assertion that the specification provides an example of morphogen-induced hippocampal dendrite morphogenesis and synapse formation with reference to part IV(C), p. 59-61, the examiner points out that this is the sole example provided which teaches effects induced by morphogen administration. This example teaches at p. 61, lines 1-7 that addition of morphogen to cultured hippocampal neurons significantly accelerates dendritic outgrowth and development as shown by tapering and branching of these cells at 3 days in vitro (as compared to 14 days in normal controls), increased numbers of synapses and increased MAP2 expression. Yet, this example as previously set forth, does not provide a nexus for the claims as recited. No teachings are commensurate in scope with protecting cognitive dysfunction, or reducing memory dysfunction. With respect to applicants assertion that the specification teaches in vivo models for hippocampal tissue damage, (Examples 7-10, p. 45-48), and that models for assessing cognitive function are provided at part IV, including examples 11-15, p. 48-55, the examiner points out that these

examples merely set forth commonly used testing paradigms. In no case have these examples provided a working example of applicants invention because in no case were the paradigms tested with groups of control animals and/or animal receiving the recited morphogens. Thus these examples merely provide an invitation for the skilled artisan to perform further undue experimentation to determine if applicants invention is effective in each of the paradigms established for each of the morphogens recited. No guidance exists which would indicate successful results with any of the paradigms or factors presented. With respect to applicants statement that the specification teaches sufficient guidance for administration of the specific morphogens at p. 39, line 17 to p. 40, line 21, citing Remington's Pharmaceutical Sciences (1990), examples 1-3, p. 41-42 and further provides well known modifications and formulations that are useful to enhance morphogen administration across the blood-brain barrier including truncation, conjugation or alteration of lipophilicity with reference to Pardridge, Endocrine Reviews 7:314-330 (1986); US Patent No. 4,801,575; Kastin et al., Pharmac. Biochem. Behav. 11:713-16 (1979), the examiner submits that such references have not been properly submitted in an IDS and as such have not been considered. As applicants refer to the specification at examples 1-3, p. 41-42 the examiner points out that the protocols for delivery although described have not been tested in any paradigm. Thus, one of skill in the art could not be reasonably assured of the ability of any such delivery system to be reliably and reproducibly effective for the morphogens and methods as recited. Thus, in view of the quantity of experimentation necessary, the lack of working examples, the unpredictability of the art, the lack of sufficient guidance in the

specification and the breadth of the claims, it would take undue trials and errors to practice the claimed invention.

New Rejections Based on Amendment

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Newly amended claims 2, 5-11 and 27 stand rejected under 35 U.S.C. 102(b) as being anticipated by Wang et al (WO 95/05846, 1995 reference; see PTO-892; see entire reference) as set forth previously in Paper No. 5, mailed 9-2-99 and as reiterated herein over the newly amended claims.

Applicants argue that Wang does not contemplate administration of morphogen to treat cognitive disorders, nor provides any guidance on how cognitive function can be assessed. Rather, Wang disclose the stimulation of astrocytes by administration of BMP and that Wang notes astrocytes are not neurons and thus, Wang cannot address protection against dysfunction associated with hippocampal tissue damage as recited in the claims.

Applicant's arguments filed 2-2-00 have been fully considered but they are not persuasive.

Applicants claims do not teach sufficient structural or functional limitations such that Wang's morphogens or methods are excluded from the scope of the claimed invention. Contrarily, instant claims appear to overlap Wang's, in particular instant claims and the claims of Wang are both drawn to morphogens and specifically BMP2, 4, 5, and 6, see instant claim 2 and Wang's claims 1-2, 9, 14 and 15. In addition, Wang's claims 13 and 21 teach a method of treating a neural defect, neural damage or neural condition comprising administering the recited morphogen. Instant claims are drawn to neural disorders including cognitive dysfunction, reducing memory dysfunction, trauma, oxygen deprivation, glucose deprivation, neurotoxin, neurodegenerative disorders, dementia and to the disorders as claimed in claims 5-11 and 27. These defects and disorders are all encompassed by Wang's description of neural defects, neural damage or neural conditions, and thus instant claims appear to be anticipated by Wang. In addition the administration of Wang's method is at the site of the defect and thus Wangs claims encompass administration intraventricularly, intravenously or intracisternally since one of skill in the art readily recognizes the location of the recited defects. BMP is given in the amount of about .1 ug to about 100mg per kg body weight, see p. 7, line 27. Cognitive dysfunction is associated with hippocampal tissue damage. Administration of the protective BMP molecule inherently protects against cognitive dysfunction and/or reduces memory dysfunction in a mammal. Thus, for these reasons the reference teachings anticipate the claimed invention.

6. Claim 2, 5-11 and 27 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey

to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 2 recites "protecting against cognitive dysfunction" and the limitation "wherein said dysfunction is associated with hippocampal tissue damage." However the specification p. 4 seems to only support protecting, improving or repairing cognitive function in a mammal and does not seem to support the limitation of these effects to those with hippocampal tissue damage. Thus, such recitations absent support constitute new matter.

Status of Claims

7. No claims are allowed.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will

the statutory period for response expire later than SIX MONTHS from the date of this final action.

9. Any inquiry of a general nature or relating to the status of this general application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Papers relating to this application may be submitted to Technology Center 1600, Group 1640 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). Should applicant wish to FAX a response, the current FAX number for Group 1600 is (703) 308-4242.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharon L. Turner, Ph.D. whose telephone number is (703) 308-0056. The examiner can normally be reached on Monday-Friday from 8:00 AM to 4:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached at (703) 308-3973.

Sharon L. Turner, Ph.D.
April 24, 2000

Christina Chan

CHRISTINA Y. CHAN
SUPERVISORY PATENT EXAMINER
GROUP ~~1800~~ 1640